

INTERNATIONAL SEARCH REPORT

Int. l. Application No

PCT/GB 03/05190

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G02B6/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HASHIZUME Y ET AL: "Integrated polarisation beam splitter using waveguide birefringence dependence on waveguide core width" ELECTRONICS LETTERS, IEE STEVENAGE, GB, vol. 37, no. 25, 6 December 2001 (2001-12-06), pages 1517-1518, XP006017649 ISSN: 0013-5194 * sections "Design", "Experimental results"; figure 1 *	1,2,4,5, 14,16, 18,19, 21,22
Y		17,23,24
A		7-9, 11-13,20



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"G" document member of the same patent family

Date of the actual completion of the international search

19 April 2004

Date of mailing of the international search report

04/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Spott, T

INTERNATIONAL SEARCH REPORT

Int lonal Application No
PCT/GB 03/05190

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LAI Q ET AL: "Tunable wavelength-selection switch and multiplexer/demultiplexer based on asymmetric silica-on-silicon Mach-Zehnder interferometer" ELECTRONICS LETTERS, IEE STEVENAGE, GB, vol. 34, no. 3, 5 February 1998 (1998-02-05), pages 266-267, XP006009267 ISSN: 0013-5194 * whole article *	1,2,4, 14,18
Y A		6,10,17 5,7-10, 15,19, 21,22
Y	BESSE P A ET AL: "OPTICAL BANDWIDTH AND FABRICATION TOLERANCES OF MULTIMODE INTERFERENCE COUPLERS" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 12, no. 6, 1 June 1994 (1994-06-01), pages 1004-1009, XP000484218 ISSN: 0733-8724 * sections II.,III.; figures 1,3 *	6
A	HONG J-K, KIM J-H, LEE S-S: "Low-power thermooptic silica-on-cilicon MZI switch using multimode interference couplers" SILICON-BASED AND HYBRID OPTOELECTRONICS IV, SPIE PROCEEDINGS, vol. 4654, 28 March 2002 (2002-03-28), pages 157-163, XP002277219 * sections II.,III.; figures 3(a),4(a) *	1
X	SOLDANO L B ET AL: "OPTICAL MULTI-MODE INTERFERENCE DEVICES BASED ON SELF-IMAGING: PRINCIPLES AND APPLICATIONS" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 13, no. 4, 1 April 1995 (1995-04-01), pages 615-627, XP000513578 ISSN: 0733-8724 cited in the application * sections IV.-VI.; figure 4 *	22
A		1,3,7,8, 23,24

-/--

INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/GB 03/05190

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 044 715 A (KAWACHI MASAO ET AL) 3 September 1991 (1991-09-03) cited in the application * abstract; col. 5, line 16 to col. 6, line 17 *	1,3,10
A		2,3,5, 7-9,17, 18
Y	LEE C C ET AL: "2 X 2 SINGLE-MODE ZERO-GAP DIRECTIONAL-COUPLER THERMO-OPTIC WAVEGUIDE SWITCH ON GLASS" APPLIED OPTICS, OPTICAL SOCIETY OF AMERICA, WASHINGTON, US, vol. 33, no. 30, 20 October 1994 (1994-10-20), pages 7016-7022, XP000476203 ISSN: 0003-6935 * section 2.; figure 4 *	1,3,23, 24
A	SOLDANO L B ET AL: "LARGE OPTICAL BANDWIDTH OF INGAASP/INP MULTI-MODE INTERFERENCE 3-DBCouplers" PROCEEDINGS EUROPEAN CONFERENCE ON INTEGRATED OPTICS WITH TECHNICAL EXHIBITION, XX, XX, 1993, pages 1-4, XP000522450 * whole article *	1,2
E	WO 2004/017112 A (PANDAVENES SUAREZ JAIME ;AVANEX U K LTD (GB); BULTHUIS HINDRICK FR) 26 February 2004 (2004-02-26) cited in the application * whole document "	1-24

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/05190

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5044715	A	03-09-1991	JP 2009985 C	02-02-1996
			JP 2232631 A	14-09-1990
			JP 7043484 B	15-05-1995
			JP 2788977 B2	20-08-1998
			JP 3039905 A	20-02-1991
			JP 2653883 B2	17-09-1997
			JP 3213829 A	19-09-1991
			CA 2009352 A1	07-08-1990
			DE 69018660 D1	24-05-1995
			DE 69018660 T2	05-10-1995
			EP 0382461 A2	16-08-1990
			KR 9305900 B1	25-06-1993
			KR 9302627 B1	06-04-1993
WO 2004017112	A	26-02-2004	WO 2004017112 A1	26-02-2004